ENSOLUM

August 6, 2024

New Mexico Oil Conservation Division
New Mexico Energy, Minerals, and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: Remediation Report and Closure Request
Nordhaus #2A
San Juan County, New Mexico
Hilcorp Energy Company
NMOCD Incident No: nAPP2416532213

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), has prepared this *Remediation Report and Closure Request* associated with a produced water release at the production well Nordhaus #2A (Site). The Site is located on surface managed by the Bureau of Land Management (BLM) in Unit C, Section 11, Township 31 North, Range 9 West, San Juan County, New Mexico (Figure 1).

SITE BACKGROUND

On June 12, 2024, a release of produced water and trace oil from a below grade tank (BGT) at the production well (API: 30-045-23586), located at latitude 36.91699°, North and longitude 107.75264° West, occurred due to corrosion at the base of the tank. This failure resulted in the BGT releasing produced water and trace oil into the unlined secondary containment cribbing. Hilcorp immediately implemented corrective action by dispatching a vacuum truck to remove the retained fluids from the containment crib and the BGT prior to the BGT's extraction. In total, approximately 36.75 barrels (bbls) of produced water with trace oil were released, of which approximately 30 bbls were recovered using a vacuum truck from the BGT and cribbing.

In accordance with Title 19, Chapter 15, Part 29 of the New Mexico Administrative Code (NMAC), Hilcorp notified the New Mexico Oil Conservation Division (NMOCD) and the BLM on June 13, 2024. The Site has been assigned NMOCD Incident Number nAPP2416532213.

SITE CHARACTERIZATION AND CLOSURE CRITERIA

An assessment of potential nearby receptors was conducted through desktop reviews of topographic maps, Federal Emergency Management Administration (FEMA) Geographic Information System (GIS) maps, United States Geological Survey (USGS) GIS maps, New Mexico Office of the State Engineer (NMOSE) database, and aerial photographs, as well as Site-specific observations.

GEOLOGY AND HYDROGEOLOGY

The Site is located in Tertiary (Eocene) age San Jose Formation and is underlain by the Nacimiento Geologic Formation. In the report titled "Hydrogeology and Water Resources of San Juan Basin, New Mexico" (Stone, et. al., 1983), the San Jose Formation is composed of interbedded sandstones and

mudstones and varies in thickness from less than 200 feet to about 2,700 feet. The hydrogeologic properties of the San Jose Formation are largely untested. Where sufficient yield is present, the primary use of water from this Formation is for domestic and/or livestock supply.

The closest significant watercourse is an unnamed dry wash located 1,256 feet north of the Site in Sandstone Canyon and is defined by a bed and bank and is identified by a dashed blue line on a USGS 7.5-minute quadrangle map. The Site is greater than 200 feet from any lakebed, sinkhole, or playa lake, and greater than 300 feet from any wetland (Figure 1). The nearest fresh-water well is NMOSE permitted well SJ-03769-POD1 (Appendix A), located approximately 6,108 feet south of the Site. The recorded depth to water on the NMOSE database is 390 feet below ground surface (bgs). The well is approximately 85 feet lower in elevation than the Site, therefore depth to groundwater at the Site is estimated to be greater than 100 feet bgs. In addition, a cathodic well log for the Site presented the shallowest water bearing zone at 180 feet bgs. No wellhead protection areas, springs, or domestic/stock wells are located within a 1-mile radius from the Site. The Site is not within a 100-year floodplain, overlying a subsurface mine, or located within an area underlain by unstable geology (area designated as low potential karst by the BLM). Schools, hospitals, institutions, churches, and/or other occupied permanent residence or structures are not located within 300 feet of the Site.

SITE CLOSURE CRITERIA

Based on the information presented above and in accordance with the *Table I, Closure Criteria for Soils Impacted by a Release* (19.15.29.12 NMAC), the following Closure Criteria for constituents of concern (COCs) should be applied to the Site:

- Benzene: 10 milligrams per kilogram (mg/kg)
- Benzene, toluene, ethylbenzene, and xylenes (BTEX): 50 mg/kg
- Total petroleum hydrocarbons (TPH) as a combination of gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO): 2,500 mg/kg
- GRO+DRO: 1,000 mg/kg
- Chloride: 20,000 mg/kg

SOIL SAMPLING ACTIVITIES

On June 19, 2024, Hilcorp retained Ensolum to collect soil samples to assess potential soil impacts resulting from the release at the Site. Four hand auger sample locations were advanced (HA01 through HA04) from the corners of the BGT cribbing to assess COC concentrations where the produced water had the highest probability of infiltration. A total of 8 samples were collected from HA01 through HA04 at 5 feet bgs and 6 feet bgs. In addition, a composite floor sample (FS01) was collected from the cribbing floor surface to evaluate the entire area. All soil samples were field screened for the presence of organic vapors using a calibrated photoionization detector (PID) and chloride using Hach® QuanTab® test strips, with results noted in Table 1.

Analytical results indicated an exceedance of TPH-GRO+TPH-DRO (1,600 mg/kg) above NMOCD Closure Criteria at 5 feet bgs at sample location HA02; however, analytical results at 6 feet bgs for TPH GRO+TPH-DRO (13 mg/kg) in sample location HA02 were below the NMOCD Closure Criteria, thus vertically delineating this impact. Concentrations of total BTEX, TPH, and chloride were below the NMOCD Closure Criteria in boring HA02. Additionally, all other soil samples collected during this delineation work were in compliance with the applicable Closure Criteria for all COCs.

On July 17, 2024, two potholes stepping out approximately 6 feet to the north and to the west of boring HA02 were advanced to approximately 6 feet bgs. The potholes were sampled at 5 feet bgs and 6 feet

bgs to confirm lateral delineation of the noted impacts at HA02. Analytical results indicated all COC concentrations were below the NMOCD Closure Criteria.

As a result, the BGT cribbing was subsequently removed on July 17, 2024 and the identified impacts in the vicinity of HA02 were excavated to collect confirmation soil samples from the Site. The resulting excavation dimensions were 20 feet by 20 feet and extended approximately 6 feet bgs. A total of three composite confirmation side wall samples (SW01, SW02, and SW03) and two floor samples (FS02 and FS03) were collected and analyzed for the COCs (Figure 2). The five-point composite samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing.

Analytical results indicated detections of TPH-DRO and ethylbenzene; however, all results were below the NMOCD Closure Criteria. Soil sample analytical results are summarized in Table 1, with complete laboratory analytical reports attached as Appendix B. Photographs taken during field activities are attached as Appendix C.

CLOSURE REQUEST

Corrective actions and soil sampling activities were conducted at the Site to address the release of produced water discovered on June 12, 2024. Laboratory analytical results for the soil samples collected from the excavation indicated all COC concentrations were compliant with the Site Closure Criteria and no further remediation is required. The corrective action initiated by Hilcorp has mitigated impacts at this Site and these remedial actions have been protective of human health, the environment, and groundwater. As such, Hilcorp respectfully request closure for Incident Number nAPP2416532213.

REFERENCES

Stone, W., Lyford, F., Frenzel, P., Mizell, N., & Padgett, E. (1983). Hydrogeology and Water Resources of San Juan Basin, New Mexico. New Mexico Bureau of Mines & Mineral Resources.

We appreciate the opportunity to provide this report to the NMOCD. If you have any questions or comments regarding this document, please contact the undersigned.

Sincerely,
Ensolum, LLC

Sidney Mahanay
Project Geologist
(979) 877-8887
smahanay@ensolum.com

Stuart Hyde
Senior Managing Geologist
(970) 903-1607
shyde@ensolum.com

Attachments:

Figure 1: Site Receptor Map
Figure 2: Excavation Analytical Results

Table 1: Soil Sample Analytical Results

Appendix A: NMOSE Point of Diversion Summary
Appendix B: Laboratory Analytical Reports
Appendix C: Photographic Log

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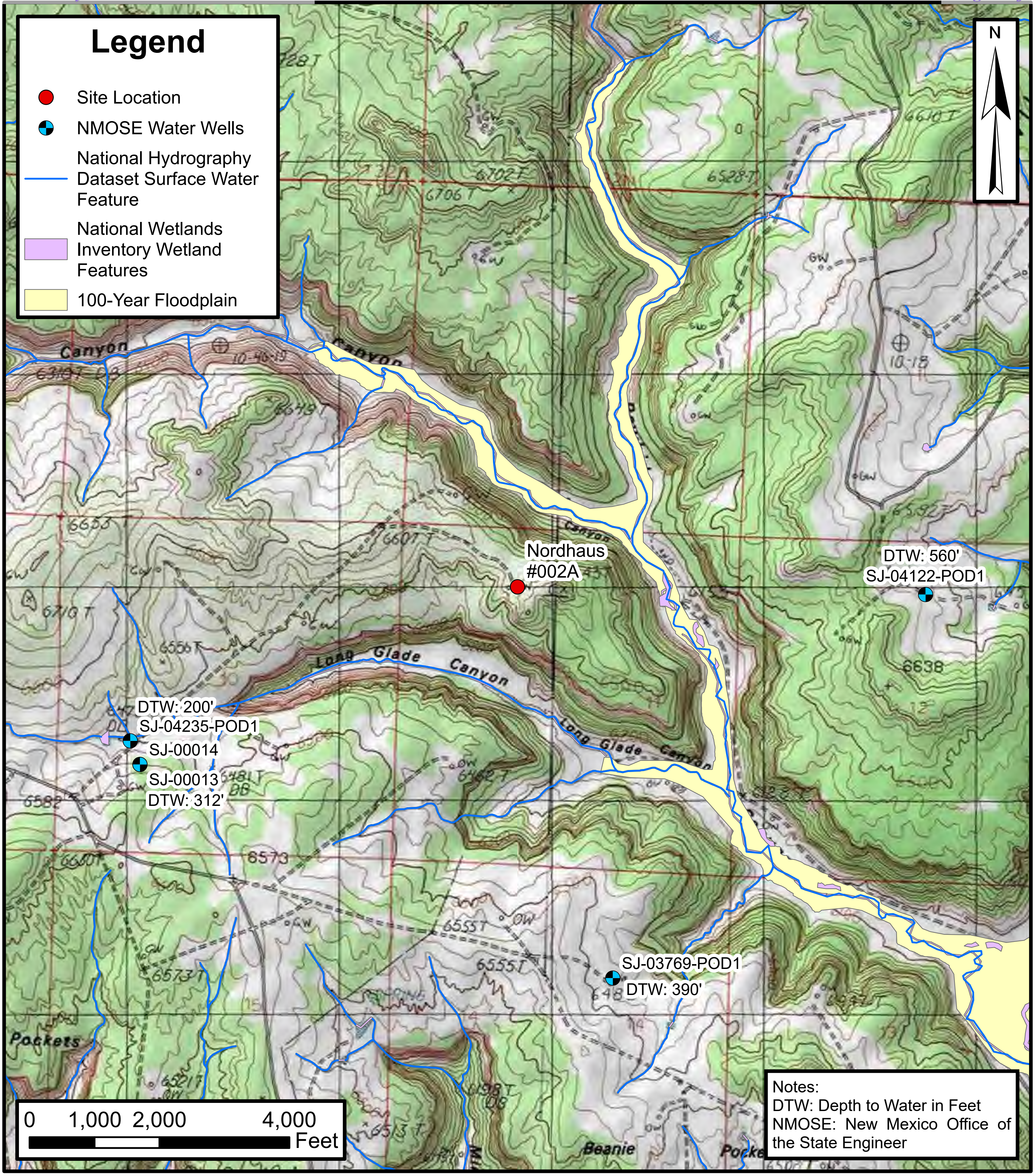
FIGURES



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Environmental, Engineering and Hydrogeologic Consultants

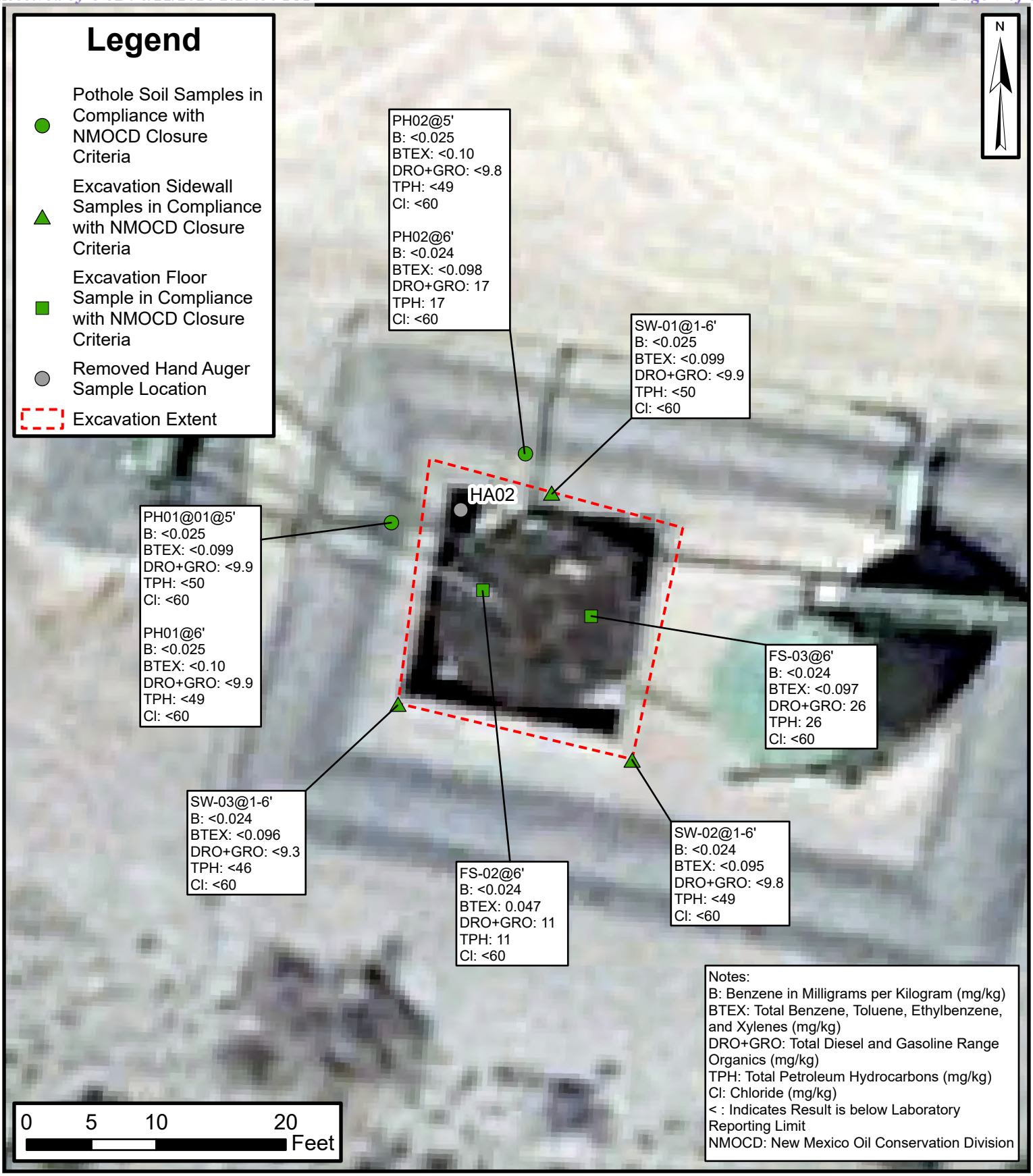
Site Receptor Map

Nordhaus #2A
Hilcorp Energy Company

36.91699, -107.75264
San Juan County, New Mexico

FIGURE
1

Sources: Environmental Systems Research Institute (ESRI), United States Geologic Survey (USGS), United States Fish and Wildlife Service (USFWS), National Geographic Society, i-cubed



Default Folder: C:\Users\Greg Pates\OneDrive - ENSOLUM, LLC\Desktop\Ensolum GIS\Ensolum GIS\1 - Durango\Hilcorp\Nordhaus #002A

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Environmental, Engineering and Hydrogeologic Consultants

Excavation Soil Sample Locations

Nordhaus #2A
Hilcorp Energy Company

36.91699, -107.75264
San Juan County, New Mexico

FIGURE
2

Sources: Google Earth

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TABLES

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TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
Nordhaus #2A
Hilcorp Energy Company
San Juan County, New Mexico

Sample Identification	Date	Depth (feet bgs)	PID (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH GRO + DRO (mg/kg)	TPH MRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Closure Criteria for Soils Impacted by a Release			NE	**10**	NE	NE	NE	**50**	NE	NE	**1,000**	NE	**2,500**	**20,000**
HA01	6/19/2024	5	10.6	< 0.025	< 0.049	< 0.049	< 0.098	< 0.098	< 4.9	< 9.9	< 9.9	< 49	< 49	< 60
HA01	6/19/2024	6	5.6	< 0.025	< 0.050	< 0.050	< 0.10	< 0.10	< 5.0	< 9.7	< 9.7	< 49	< 49	< 60
HA02	6/19/2024	5	4.8	< 0.024	< 0.047	< 0.047	< 0.095	< 0.095	< 4.7	1,600	**1,600**	750	2,350	< 60
HA02	6/19/2024	6	18.2	< 0.024	< 0.049	< 0.049	< 0.097	< 0.097	< 4.9	13	13	< 49	13	< 60
HA03	6/19/2024	5	8.8	< 0.025	< 0.049	< 0.049	< 0.098	< 0.098	< 4.9	430	430	240	670	< 60
HA03	6/19/2024	6	16.1	< 0.025	< 0.050	< 0.050	< 0.099	< 0.099	< 5.0	180	180	110	290	< 60
HA04	6/19/2024	5	12.4	< 0.025	< 0.050	< 0.050	< 0.10	< 0.10	< 5.0	33	33	< 50	33	< 60
HA04	6/19/2024	6	4.1	< 0.024	< 0.048	< 0.048	< 0.097	< 0.097	< 4.8	< 9.6	< 9.6	< 48	< 48	< 60
FS01	6/19/2024	5	10.4	< 0.024	< 0.047	< 0.047	< 0.094	< 0.094	< 4.7	19	19	< 47	19	< 60
PH01	7/17/2024	5	5.1	< 0.025	< 0.050	< 0.050	< 0.099	< 0.099	< 5.0	< 9.9	< 9.9	< 50	< 50	< 60
PH01	7/17/2024	6	5.4	< 0.025	< 0.050	< 0.050	< 0.10	< 0.10	< 5.0	< 9.9	< 9.9	< 49	< 49	< 60
PH02	7/17/2024	5	3.4	< 0.025	< 0.050	< 0.050	< 0.10	< 0.10	< 5.0	< 9.8	< 9.8	< 49	< 49	< 60
PH02	7/17/2024	6	8.6	< 0.024	< 0.049	< 0.049	< 0.098	< 0.098	< 4.9	17	17	< 49	17	< 60
SW-01	7/17/2024	1-6	10.8	< 0.025	< 0.049	< 0.049	< 0.099	< 0.099	< 4.9	< 9.9	< 9.9	< 50	< 50	< 60
SW-02	7/17/2024	1-6	6.5	< 0.024	< 0.047	< 0.047	< 0.095	< 0.095	< 4.7	< 9.8	< 9.8	< 49	< 49	< 60
SW-03	7/17/2024	1-6	4.3	< 0.024	< 0.048	< 0.048	< 0.096	< 0.096	< 4.8	< 9.3	< 9.3	< 46	< 46	< 60
FS-02	7/17/2024	6	1.2	< 0.024	< 0.047	0.047	< 0.095	0.047	< 4.7	11	11	< 48	11	< 60
FS-03	7/17/2024	6	11.8	< 0.024	< 0.049	< 0.049	< 0.097	< 0.097	< 4.9	26	26	< 48	26	< 60

Notes:

bgs: below ground surface
BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes
mg/kg: milligrams per kilogram
NE: Not Established
NMOCD: New Mexico Oil Conservation Division
PID: Photoionization detector
ppm: Parts per million
GRO: Gasoline Range Organics
DRO: Diesel Range Organics
MRO: Motor Oil/Lube Oil Range Organics
TPH: Total Petroleum Hydrocarbon
< : indicates result less than the stated laboratory reporting limit (RL)
*Concentrations in **bold** and shaded exceed the New Mexico Oil Conservation Division Table I Closure Criteria for Soils Impacted by a Release*

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APPENDIX A

NMOSE Point of Diversion Summary

Revised June 1972

STATE ENGINEER OFFICE
WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Mario Ulibarri Owner's Well No. _____
Street or Post Office Address 652-ACR 4599
City and State Blanco NM 87412

Well was drilled under Permit No. SJ 3769 and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section _____ Township _____ Range _____ N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= 2748325 feet, Y= 2147145 feet, N.M. Coordinate System West Zone in the _____ Grant.

(B) Drilling Contractor Terry G Hood License No. WD 717

Address Aztec nm 87410

Drilling Began 11/25/06 Completed 11/28/06 Type tools _____ Size of hole 4½ in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 485 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 390 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
395	455	60	Blue sandstone	3

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
4½	PVC		0	485	485		385	485

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

2006 NOV 30 PM 8 STATE ENGINEER OFFICE AZTEC, NEW MEXICO

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by: _____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received November 30, 2006 Quad _____ FWL _____ FSL _____

File No. SJ-3769 Use Stock Location No. 31N.09W.14.232

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	50	50	Sandstone
50	110	60	Blue Sandstone
110	160	50	Yellow Sandstone
160	225	65	Sandy Shale
225	260	35	Sandstone
260	335	75	Sandy Shale
335	350	15	Red Shale
350	395	45	Sandy Shale
395	455	60	Gray Sandstone
455	485	30	Sandy Shale

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Driller

INSTRUCTIONS: This form should be executed in triplicate, ~~preferably~~ typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

1534

30-045-23586-00-00

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS
NORTHWESTERN NEW MEXICO
(Submit 3 copies to OCD Aztec Office)

Operator MERIDIAN OIL INC. Location: Unit C Sec. 11 Twp 31 Rng 9

Name of Well/Wells or Pipeline Serviced NORDHAUS #2A

cps 6562w

Elevation N/A Completion Date 1/8/87 Total Depth 500' Land Type* N/A

Casing, Sizes, Types & Depths N/A

If Casing is cemented, show amounts & types used N/A

If Cement or Bentonite Plugs have been placed, show depths & amounts used

N/A

Depths & thickness of water zones with description of water when possible:

Fresh, Clear, Salty, Sulphur, Etc. 180' & 300'

Depths gas encountered: N/A

Type & amount of coke breeze used: 2600 lbs.

Depths anodes placed: 460', 415', 405', 375', 365', [illegible], 335', 325', 315'

Depths vent pipes placed: 500'

Vent pipe perforations: 280'

Remarks: gb #1

RECEIVED
MAY 31 1991
OIL CON. DIV.
DIST. 3

If any of the above data is unavailable, please indicate so. Copies of all logs, including Drillers Log, Water Analyses & Well Bore Schematics should be submitted when available. Unplugged abandoned wells are to be included.

*Land Type may be shown: F-Federal; I-Indian; S-State; P-Fee.
If Federal or Indian, add Lease Number.

Burge Corrosion Systems
P.O. Drawer G
Aztec, New Mexico 87410

Drilling Log (Attach Hereto). ☐ LOG ON

Completion Date January 2, 1987

Well Name	Location	
Nordhaus #2-A	Union Texas Petroleum	C 11 31 9
Type & Size Bit Used		Work Order No.

Anode Hole Depth	Total Drilling Rig Time	Total Lbs. Coke Used	Lost Circulation Mat'l Used	No. Sacks Mud Used
500'		2600#		

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Anode Depth	460'	415	405	385	375	365	345	335	325	315
Anode Output (Amps)	2.5	3.0	3.2	3.2	3.6	3.3	2.7	2.3	2.5	3.2
Anode Depth	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Anode Output (Amps)	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20

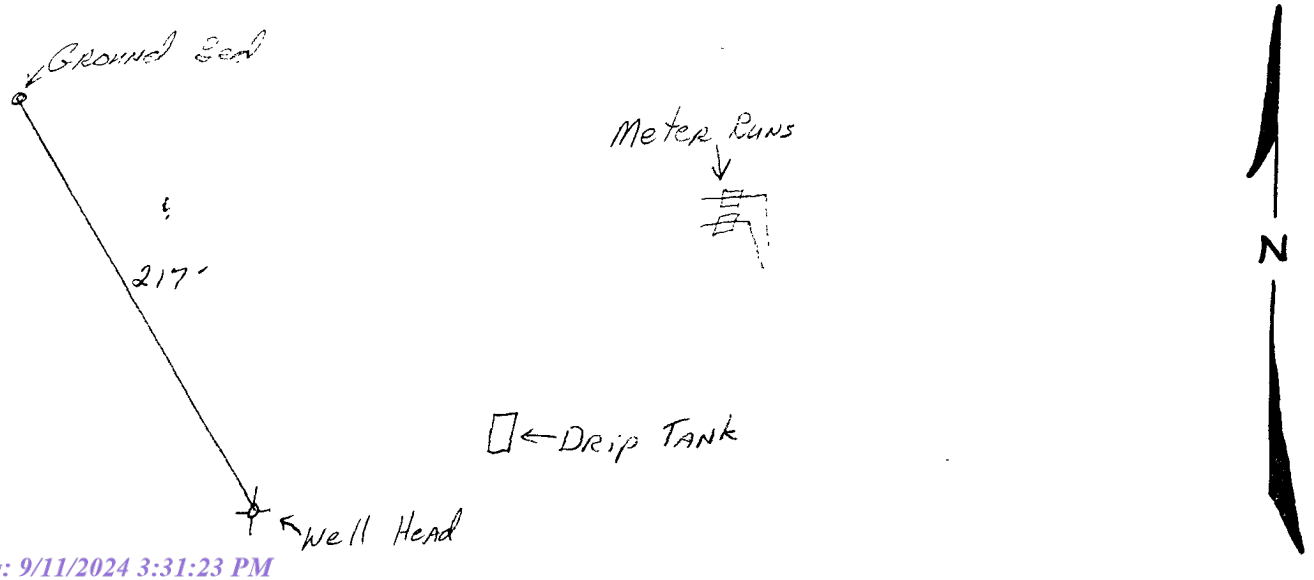
Total Circuit Resistance			No. 8 C.P. Cable Used	No. 2 C.P. Cable Used
Volts 11.5	Amps 15.2	Ohms 0.72	4105'	

Remarks: Had to fill hole w/water to top hole. Used 500' of 1" P.V.C. joint pipe w/ 280' of perforations.

All Construction Completed

Cody Mendoza
(Signature)

GROUND BED LAYOUT SKETCH



CORROSION CONTROL CO. — 301 Ash — Aztec, New Mexico

COMPANY Union Texas Petroleum DAILY DRILLING REPORT January 8, 1986

WELL NAME:	WELL NUMBER:	SECTION:	TOWNSHIP:	RANGE:
Nordhaus	2-A	11	31-N	9-W

WATER AT	FEET	HOLE MADE:
120' & 200'		500'

DESCRIPTION OF FORMATION

FROM	TO	FORMATION IS	COLOR
0'	310'	Sandstone, w/ sand & streaks of shale	Tan & Gray
310'	420'	Shale w/ streaks of sand & sandstone	Gray.
120'	460'	Sandstone	Gray
460'	490'	Sandy shale	Gray
490'	500'	Sandstone	Gray.

REMARKS: Water volume was very slight. Had to go to injection at 200' to drill on down to 500'

Driller Cody Mumbower Tool Dresser

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

STATE ENGINEER OFFICE
AZTEC, NEW MEXICO

2015 APR -8 PM 1:35

1. GENERAL AND WELL LOCATION

OSE POD NUMBER (WELL NUMBER)	OSE FILE NUMBER(S) ~~SJ-4134-POD1~~ SJ-4122POD1 DCC
WELL OWNER NAME(S): Mario Ulibarri	PHONE (OPTIONAL): 505-947-1692
WELL OWNER MAILING ADDRESS: 123 Road 4556	CITY: Blanco STATE: NM ZIP: 87412

WELL LOCATION (FROM GPS)	DEGREES	MINUTES	SECONDS	
LATITUDE	36	55	.1	N
LONGITUDE	107	43	44	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE
NW/4 NE/4 S: 2 T: 29N R: 09W

2. DRILLING & CASING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD-1357	Mark Bailey	Bailey Drilling Company

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
3-23-15	3-30-14	650	650	560

COMPLETED WELL IS: ( ) ARTESIAN ( ) DRY HOLE (•) SHALLOW (UNCONFINED) — STATIC WATER LEVEL IN COMPLETED WELL (FT): 500

DRILLING FLUID: (•) AIR ( ) MUD ADDITIVES – SPECIFY:

DRILLING METHOD: (•) ROTARY ( ) HAMMER ( ) CABLE TOOL ( ) OTHER – SPECIFY:

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	550	7 7/8	PVC	glue	5	sch. 40	
550	650	7 7/8	PVC	glue	5	sch. 40	2x1/16

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT
0	20	7 7/8	cement	3	hand pour
500	650	7 7/8	3/8" gravel	30	hand pour

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	POD NUMBER	TRN NUMBER
SJ-4122	1	579130

LOCATION 31N.09W.12.230

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	5	5	clay - red	○ Y ◉ N	
5	50	45	sandstone - brn	○ Y ◉ N	
50	120	70	shale - gray	○ Y ◉ N	
120	200	80	sandstone - gray	○ Y ◉ N	
200	255	55	shale - gray	○ Y ◉ N	
255	400	145	sandstone - gray	○ Y ◉ N	
400	460	60	shale - gray	○ Y ◉ N	
460	560	100	sandstone and clay - gray	○ Y ◉ N	
560	650	90	sandstone - gray	◉ Y ○ N	7
				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	
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				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	

STATE ENGINEER OFFICE AZTEC, NEW MEXICO 2015 APR -8 P 1:39

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: ○ PUMP ◉ AIR LIFT ○ BAILER ○ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 7

5. TEST; RIG SUPERVISION

WELL TEST — TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION:

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:

Mark Bailey Mark Bailey — SIGNATURE OF DRILLER / PRINT SIGNEE NAME

4-6-2015 — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER SJ-4122	POD NUMBER	TRN NUMBER
LOCATION 31N.09W.12.230		PAGE 2 OF 2

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APPENDIX B

Laboratory Analytical Reports

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

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Farmington, New Mexico 87499

Generated 7/2/2024 3:58:50 PM

JOB DESCRIPTION

Nordhaus #2A

JOB NUMBER

885-6591-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

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Client: Hilcorp Energy
Project/Site: Nordhaus #2A

Laboratory Job ID: 885-6591-1

Table of Contents

Definitions/Glossary

Client: Hilcorp Energy
Job ID: 885-6591-1
Project/Site: Nordhaus #2A

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
F1	MS and/or MSD recovery exceeds control limits.
S1-	Surrogate recovery exceeds control limits, low biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Hilcorp Energy
Project: Nordhaus #2A

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Job ID: 885-6591-1 Eurofins Albuquerque

Job Narrative
885-6591-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 6/20/2024 7:05 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.3°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
Method 8015D_DRO: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 885-7194 and analytical batch 885-7313 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 8015D_DRO: The following sample was diluted due to the nature of the sample matrix: HA02@5' (885-6591-3). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus #2A

Job ID: 885-6591-1

Client Sample ID: HA01@5'

Date Collected: 06/19/24 10:08
Date Received: 06/20/24 07:05

Lab Sample ID: 885-6591-1
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		06/20/24 13:26	06/25/24 17:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*35 - 166*	*06/20/24 13:26*	*06/25/24 17:33*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/20/24 13:26	06/25/24 17:33	1
Ethylbenzene	ND		0.049		mg/Kg		06/20/24 13:26	06/25/24 17:33	1
Toluene	ND		0.049		mg/Kg		06/20/24 13:26	06/25/24 17:33	1
Xylenes, Total	ND		0.098		mg/Kg		06/20/24 13:26	06/25/24 17:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*06/20/24 13:26*	*06/25/24 17:33*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		06/21/24 14:47	06/25/24 15:49	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		06/21/24 14:47	06/25/24 15:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*111*		*62 - 134*	*06/21/24 14:47*	*06/25/24 15:49*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		06/21/24 09:33	06/21/24 15:51	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus #2A

Job ID: 885-6591-1

Client Sample ID: HA01@6'

Date Collected: 06/19/24 11:01
Date Received: 06/20/24 07:05

Lab Sample ID: 885-6591-2

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		06/20/24 13:26	06/25/24 17:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*35 - 166*	*06/20/24 13:26*	*06/25/24 17:57*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/20/24 13:26	06/25/24 17:57	1
Ethylbenzene	ND		0.050		mg/Kg		06/20/24 13:26	06/25/24 17:57	1
Toluene	ND		0.050		mg/Kg		06/20/24 13:26	06/25/24 17:57	1
Xylenes, Total	ND		0.10		mg/Kg		06/20/24 13:26	06/25/24 17:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*06/20/24 13:26*	*06/25/24 17:57*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		06/21/24 14:47	06/25/24 16:03	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		06/21/24 14:47	06/25/24 16:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*102*		*62 - 134*	*06/21/24 14:47*	*06/25/24 16:03*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		06/21/24 09:33	06/21/24 16:04	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus #2A

Job ID: 885-6591-1

Client Sample ID: HA02@5'

Date Collected: 06/19/24 10:15
Date Received: 06/20/24 07:05

Lab Sample ID: 885-6591-3

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.7		mg/Kg		06/20/24 13:26	06/25/24 18:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*35 - 166*	*06/20/24 13:26*	*06/25/24 18:20*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		06/20/24 13:26	06/25/24 18:20	1
Ethylbenzene	ND		0.047		mg/Kg		06/20/24 13:26	06/25/24 18:20	1
Toluene	ND		0.047		mg/Kg		06/20/24 13:26	06/25/24 18:20	1
Xylenes, Total	ND		0.095		mg/Kg		06/20/24 13:26	06/25/24 18:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*	*06/20/24 13:26*	*06/25/24 18:20*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**1600**		94		mg/Kg		06/21/24 14:47	06/25/24 16:16	10
Motor Oil Range Organics [C28-C40]	**750**		470		mg/Kg		06/21/24 14:47	06/25/24 16:16	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*0*	*S1- D*	*62 - 134*	*06/21/24 14:47*	*06/25/24 16:16*	*10*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		06/21/24 09:33	06/21/24 16:16	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus #2A

Job ID: 885-6591-1

Client Sample ID: HA02@6'

Date Collected: 06/19/24 11:15
Date Received: 06/20/24 07:05

Lab Sample ID: 885-6591-4

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		06/20/24 13:26	06/25/24 18:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*35 - 166*	*06/20/24 13:26*	*06/25/24 18:44*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		06/20/24 13:26	06/25/24 18:44	1
Ethylbenzene	ND		0.049		mg/Kg		06/20/24 13:26	06/25/24 18:44	1
Toluene	ND		0.049		mg/Kg		06/20/24 13:26	06/25/24 18:44	1
Xylenes, Total	ND		0.097		mg/Kg		06/20/24 13:26	06/25/24 18:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*06/20/24 13:26*	*06/25/24 18:44*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**13**		9.7		mg/Kg		06/21/24 14:47	06/25/24 16:29	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		06/21/24 14:47	06/25/24 16:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*101*		*62 - 134*	*06/21/24 14:47*	*06/25/24 16:29*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		06/21/24 09:33	06/21/24 16:53	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus #2A

Job ID: 885-6591-1

Client Sample ID: HA03@5'

Date Collected: 06/19/24 10:21
Date Received: 06/20/24 07:05

Lab Sample ID: 885-6591-5

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		06/20/24 13:26	06/25/24 19:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*35 - 166*	*06/20/24 13:26*	*06/25/24 19:08*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/20/24 13:26	06/25/24 19:08	1
Ethylbenzene	ND		0.049		mg/Kg		06/20/24 13:26	06/25/24 19:08	1
Toluene	ND		0.049		mg/Kg		06/20/24 13:26	06/25/24 19:08	1
Xylenes, Total	ND		0.098		mg/Kg		06/20/24 13:26	06/25/24 19:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*06/20/24 13:26*	*06/25/24 19:08*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**430**		10		mg/Kg		06/21/24 14:47	06/25/24 16:43	1
Motor Oil Range Organics [C28-C40]	**240**		50		mg/Kg		06/21/24 14:47	06/25/24 16:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*06/21/24 14:47*	*06/25/24 16:43*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		06/21/24 09:33	06/21/24 17:06	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus #2A

Job ID: 885-6591-1

Client Sample ID: HA03@6

Date Collected: 06/19/24 11:32
Date Received: 06/20/24 07:05

Lab Sample ID: 885-6591-6

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		06/20/24 13:26	06/25/24 19:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*35 - 166*	*06/20/24 13:26*	*06/25/24 19:32*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/20/24 13:26	06/25/24 19:32	1
Ethylbenzene	ND		0.050		mg/Kg		06/20/24 13:26	06/25/24 19:32	1
Toluene	ND		0.050		mg/Kg		06/20/24 13:26	06/25/24 19:32	1
Xylenes, Total	ND		0.099		mg/Kg		06/20/24 13:26	06/25/24 19:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*	*06/20/24 13:26*	*06/25/24 19:32*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**180**		9.3		mg/Kg		06/21/24 14:47	06/25/24 17:09	1
Motor Oil Range Organics [C28-C40]	**110**		46		mg/Kg		06/21/24 14:47	06/25/24 17:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*103*		*62 - 134*	*06/21/24 14:47*	*06/25/24 17:09*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		06/21/24 09:33	06/21/24 17:18	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus #2A

Job ID: 885-6591-1

Client Sample ID: HA04@5'

Date Collected: 06/19/24 10:30
Date Received: 06/20/24 07:05

Lab Sample ID: 885-6591-7

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		06/20/24 13:26	06/25/24 19:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*35 - 166*	*06/20/24 13:26*	*06/25/24 19:55*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/20/24 13:26	06/25/24 19:55	1
Ethylbenzene	ND		0.050		mg/Kg		06/20/24 13:26	06/25/24 19:55	1
Toluene	ND		0.050		mg/Kg		06/20/24 13:26	06/25/24 19:55	1
Xylenes, Total	ND		0.10		mg/Kg		06/20/24 13:26	06/25/24 19:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*48 - 145*	*06/20/24 13:26*	*06/25/24 19:55*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**33**		9.9		mg/Kg		06/21/24 14:47	06/25/24 17:35	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		06/21/24 14:47	06/25/24 17:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*102*		*62 - 134*	*06/21/24 14:47*	*06/25/24 17:35*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		06/21/24 09:33	06/21/24 18:20	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus #2A

Job ID: 885-6591-1

Client Sample ID: HA04@6'

Date Collected: 06/19/24 11:43
Date Received: 06/20/24 07:05

Lab Sample ID: 885-6591-8

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8		mg/Kg		06/20/24 13:26	06/25/24 20:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*35 - 166*	*06/20/24 13:26*	*06/25/24 20:19*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		06/20/24 13:26	06/25/24 20:19	1
Ethylbenzene	ND		0.048		mg/Kg		06/20/24 13:26	06/25/24 20:19	1
Toluene	ND		0.048		mg/Kg		06/20/24 13:26	06/25/24 20:19	1
Xylenes, Total	ND		0.097		mg/Kg		06/20/24 13:26	06/25/24 20:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*06/20/24 13:26*	*06/25/24 20:19*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		06/21/24 14:47	06/25/24 18:01	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		06/21/24 14:47	06/25/24 18:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*120*		*62 - 134*	*06/21/24 14:47*	*06/25/24 18:01*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		06/21/24 09:33	06/21/24 17:43	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus #2A

Job ID: 885-6591-1

Client Sample ID: FS01

Date Collected: 06/19/24 12:01
Date Received: 06/20/24 07:05

Lab Sample ID: 885-6591-9

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.7		mg/Kg		06/20/24 13:26	06/25/24 20:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*35 - 166*	*06/20/24 13:26*	*06/25/24 20:43*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		06/20/24 13:26	06/25/24 20:43	1
Ethylbenzene	ND		0.047		mg/Kg		06/20/24 13:26	06/25/24 20:43	1
Toluene	ND		0.047		mg/Kg		06/20/24 13:26	06/25/24 20:43	1
Xylenes, Total	ND		0.094		mg/Kg		06/20/24 13:26	06/25/24 20:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*06/20/24 13:26*	*06/25/24 20:43*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**19**	**F1**	9.4		mg/Kg		06/21/24 14:47	06/25/24 17:48	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		06/21/24 14:47	06/25/24 17:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*133*		*62 - 134*	*06/21/24 14:47*	*06/25/24 17:48*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		06/21/24 09:33	06/21/24 17:30	20

QC Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus #2A

Job ID: 885-6591-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-7098/1-A
Matrix: Solid
Analysis Batch: 7389

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7098

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		06/20/24 13:26	06/25/24 12:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*06/20/24 13:26*	*06/25/24 12:26*	*1*

Lab Sample ID: LCS 885-7098/2-A
Matrix: Solid
Analysis Batch: 7389

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7098

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			25.0	24.9		mg/Kg		99	70 - 130		

Surrogate			*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)			*202*	*S1+*	*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-7098/1-A
Matrix: Solid
Analysis Batch: 7392

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7098

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/20/24 13:26	06/25/24 12:26	1
Ethylbenzene	ND		0.050		mg/Kg		06/20/24 13:26	06/25/24 12:26	1
Toluene	ND		0.050		mg/Kg		06/20/24 13:26	06/25/24 12:26	1
Xylenes, Total	ND		0.10		mg/Kg		06/20/24 13:26	06/25/24 12:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*06/20/24 13:26*	*06/25/24 12:26*	*1*

Lab Sample ID: LCS 885-7098/3-A
Matrix: Solid
Analysis Batch: 7392

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7098

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.925		mg/Kg		93	70 - 130		
Ethylbenzene			1.00	0.870		mg/Kg		87	70 - 130		
m&p-Xylene			2.00	1.76		mg/Kg		88	70 - 130		
o-Xylene			1.00	0.853		mg/Kg		85	70 - 130		
Toluene			1.00	0.865		mg/Kg		87	70 - 130		
Xylenes, Total			3.00	2.61		mg/Kg		87	70 - 130		

Surrogate			*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)			*94*		*48 - 145*

QC Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus #2A

Job ID: 885-6591-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: 885-6591-9 MS
Matrix: Solid
Analysis Batch: 7313

Client Sample ID: FS01
Prep Type: Total/NA
Prep Batch: 7194

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10-C28]	19	F1	46.9	34.9	F1	mg/Kg		34	44 - 136

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*111*		*62 - 134*

Lab Sample ID: 885-6591-9 MSD
Matrix: Solid
Analysis Batch: 7313

Client Sample ID: FS01
Prep Type: Total/NA
Prep Batch: 7194

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	19	F1	46.7	34.9	F1	mg/Kg		34	44 - 136	0	32

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*109*		*62 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-7160/1-A
Matrix: Solid
Analysis Batch: 7218

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7160

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		06/21/24 09:33	06/21/24 12:34	1

Lab Sample ID: LCS 885-7160/2-A
Matrix: Solid
Analysis Batch: 7218

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7160

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride			30.0	28.2		mg/Kg		94	90 - 110

QC Association Summary

Client: Hilcorp Energy
Project/Site: Nordhaus #2A

Job ID: 885-6591-1

GC VOA

Prep Batch: 7098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6591-1	HA01@5'	Total/NA	Solid	5030C	
885-6591-2	HA01@6'	Total/NA	Solid	5030C	
885-6591-3	HA02@5'	Total/NA	Solid	5030C	
885-6591-4	HA02@6'	Total/NA	Solid	5030C	
885-6591-5	HA03@5'	Total/NA	Solid	5030C	
885-6591-6	HA03@6	Total/NA	Solid	5030C	
885-6591-7	HA04@5'	Total/NA	Solid	5030C	
885-6591-8	HA04@6'	Total/NA	Solid	5030C	
885-6591-9	FS01	Total/NA	Solid	5030C	
MB 885-7098/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-7098/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-7098/3-A	Lab Control Sample	Total/NA	Solid	5030C	

Analysis Batch: 7389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6591-1	HA01@5'	Total/NA	Solid	8015M/D	7098
885-6591-2	HA01@6'	Total/NA	Solid	8015M/D	7098
885-6591-3	HA02@5'	Total/NA	Solid	8015M/D	7098
885-6591-4	HA02@6'	Total/NA	Solid	8015M/D	7098
885-6591-5	HA03@5'	Total/NA	Solid	8015M/D	7098
885-6591-6	HA03@6	Total/NA	Solid	8015M/D	7098
885-6591-7	HA04@5'	Total/NA	Solid	8015M/D	7098
885-6591-8	HA04@6'	Total/NA	Solid	8015M/D	7098
885-6591-9	FS01	Total/NA	Solid	8015M/D	7098
MB 885-7098/1-A	Method Blank	Total/NA	Solid	8015M/D	7098
LCS 885-7098/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	7098

Analysis Batch: 7392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6591-1	HA01@5'	Total/NA	Solid	8021B	7098
885-6591-2	HA01@6'	Total/NA	Solid	8021B	7098
885-6591-3	HA02@5'	Total/NA	Solid	8021B	7098
885-6591-4	HA02@6'	Total/NA	Solid	8021B	7098
885-6591-5	HA03@5'	Total/NA	Solid	8021B	7098
885-6591-6	HA03@6	Total/NA	Solid	8021B	7098
885-6591-7	HA04@5'	Total/NA	Solid	8021B	7098
885-6591-8	HA04@6'	Total/NA	Solid	8021B	7098
885-6591-9	FS01	Total/NA	Solid	8021B	7098
MB 885-7098/1-A	Method Blank	Total/NA	Solid	8021B	7098
LCS 885-7098/3-A	Lab Control Sample	Total/NA	Solid	8021B	7098

GC Semi VOA

Prep Batch: 7194

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6591-1	HA01@5'	Total/NA	Solid	SHAKE	
885-6591-2	HA01@6'	Total/NA	Solid	SHAKE	
885-6591-3	HA02@5'	Total/NA	Solid	SHAKE	
885-6591-4	HA02@6'	Total/NA	Solid	SHAKE	
885-6591-5	HA03@5'	Total/NA	Solid	SHAKE	
885-6591-6	HA03@6	Total/NA	Solid	SHAKE	

QC Association Summary

Client: Hilcorp Energy
Project/Site: Nordhaus #2A

Job ID: 885-6591-1

GC Semi VOA (Continued)

Prep Batch: 7194 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6591-7	HA04@5'	Total/NA	Solid	SHAKE	
885-6591-8	HA04@6'	Total/NA	Solid	SHAKE	
885-6591-9	FS01	Total/NA	Solid	SHAKE	
885-6591-9 MS	FS01	Total/NA	Solid	SHAKE	
885-6591-9 MSD	FS01	Total/NA	Solid	SHAKE	

Analysis Batch: 7313

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6591-1	HA01@5'	Total/NA	Solid	8015M/D	7194
885-6591-2	HA01@6'	Total/NA	Solid	8015M/D	7194
885-6591-3	HA02@5'	Total/NA	Solid	8015M/D	7194
885-6591-4	HA02@6'	Total/NA	Solid	8015M/D	7194
885-6591-5	HA03@5'	Total/NA	Solid	8015M/D	7194
885-6591-6	HA03@6	Total/NA	Solid	8015M/D	7194
885-6591-7	HA04@5'	Total/NA	Solid	8015M/D	7194
885-6591-8	HA04@6'	Total/NA	Solid	8015M/D	7194
885-6591-9	FS01	Total/NA	Solid	8015M/D	7194
885-6591-9 MS	FS01	Total/NA	Solid	8015M/D	7194
885-6591-9 MSD	FS01	Total/NA	Solid	8015M/D	7194

HPLC/IC

Prep Batch: 7160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6591-1	HA01@5'	Total/NA	Solid	300_Prep	
885-6591-2	HA01@6'	Total/NA	Solid	300_Prep	
885-6591-3	HA02@5'	Total/NA	Solid	300_Prep	
885-6591-4	HA02@6'	Total/NA	Solid	300_Prep	
885-6591-5	HA03@5'	Total/NA	Solid	300_Prep	
885-6591-6	HA03@6	Total/NA	Solid	300_Prep	
885-6591-7	HA04@5'	Total/NA	Solid	300_Prep	
885-6591-8	HA04@6'	Total/NA	Solid	300_Prep	
885-6591-9	FS01	Total/NA	Solid	300_Prep	
MB 885-7160/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-7160/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 7218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6591-1	HA01@5'	Total/NA	Solid	300.0	7160
885-6591-2	HA01@6'	Total/NA	Solid	300.0	7160
885-6591-3	HA02@5'	Total/NA	Solid	300.0	7160
885-6591-4	HA02@6'	Total/NA	Solid	300.0	7160
885-6591-5	HA03@5'	Total/NA	Solid	300.0	7160
885-6591-6	HA03@6	Total/NA	Solid	300.0	7160
885-6591-7	HA04@5'	Total/NA	Solid	300.0	7160
885-6591-8	HA04@6'	Total/NA	Solid	300.0	7160
885-6591-9	FS01	Total/NA	Solid	300.0	7160
MB 885-7160/1-A	Method Blank	Total/NA	Solid	300.0	7160
LCS 885-7160/2-A	Lab Control Sample	Total/NA	Solid	300.0	7160

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Nordhaus #2A

Job ID: 885-6591-1

Client Sample ID: HA01@5'

Lab Sample ID: 885-6591-1
Matrix: Solid
Date Collected: 06/19/24 10:08
Date Received: 06/20/24 07:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7098	AT	EET ALB	06/20/24 13:26
Total/NA	Analysis	8015M/D		1	7389	JP	EET ALB	06/25/24 17:33
Total/NA	Prep	5030C			7098	AT	EET ALB	06/20/24 13:26
Total/NA	Analysis	8021B		1	7392	JP	EET ALB	06/25/24 17:33
Total/NA	Prep	SHAKE			7194	KR	EET ALB	06/21/24 14:47
Total/NA	Analysis	8015M/D		1	7313	DH	EET ALB	06/25/24 15:49
Total/NA	Prep	300_Prep			7160	SS	EET ALB	06/21/24 09:33
Total/NA	Analysis	300.0		20	7218	RC	EET ALB	06/21/24 15:51

Client Sample ID: HA01@6'

Lab Sample ID: 885-6591-2
Matrix: Solid
Date Collected: 06/19/24 11:01
Date Received: 06/20/24 07:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7098	AT	EET ALB	06/20/24 13:26
Total/NA	Analysis	8015M/D		1	7389	JP	EET ALB	06/25/24 17:57
Total/NA	Prep	5030C			7098	AT	EET ALB	06/20/24 13:26
Total/NA	Analysis	8021B		1	7392	JP	EET ALB	06/25/24 17:57
Total/NA	Prep	SHAKE			7194	KR	EET ALB	06/21/24 14:47
Total/NA	Analysis	8015M/D		1	7313	DH	EET ALB	06/25/24 16:03
Total/NA	Prep	300_Prep			7160	SS	EET ALB	06/21/24 09:33
Total/NA	Analysis	300.0		20	7218	RC	EET ALB	06/21/24 16:04

Client Sample ID: HA02@5'

Lab Sample ID: 885-6591-3
Matrix: Solid
Date Collected: 06/19/24 10:15
Date Received: 06/20/24 07:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7098	AT	EET ALB	06/20/24 13:26
Total/NA	Analysis	8015M/D		1	7389	JP	EET ALB	06/25/24 18:20
Total/NA	Prep	5030C			7098	AT	EET ALB	06/20/24 13:26
Total/NA	Analysis	8021B		1	7392	JP	EET ALB	06/25/24 18:20
Total/NA	Prep	SHAKE			7194	KR	EET ALB	06/21/24 14:47
Total/NA	Analysis	8015M/D		10	7313	DH	EET ALB	06/25/24 16:16
Total/NA	Prep	300_Prep			7160	SS	EET ALB	06/21/24 09:33
Total/NA	Analysis	300.0		20	7218	RC	EET ALB	06/21/24 16:16

Client Sample ID: HA02@6'

Lab Sample ID: 885-6591-4
Matrix: Solid
Date Collected: 06/19/24 11:15
Date Received: 06/20/24 07:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7098	AT	EET ALB	06/20/24 13:26
Total/NA	Analysis	8015M/D		1	7389	JP	EET ALB	06/25/24 18:44

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Nordhaus #2A

Job ID: 885-6591-1

Client Sample ID: HA02@6'

Lab Sample ID: 885-6591-4
Matrix: Solid
Date Collected: 06/19/24 11:15
Date Received: 06/20/24 07:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7098	AT	EET ALB	06/20/24 13:26
Total/NA	Analysis	8021B		1	7392	JP	EET ALB	06/25/24 18:44
Total/NA	Prep	SHAKE			7194	KR	EET ALB	06/21/24 14:47
Total/NA	Analysis	8015M/D		1	7313	DH	EET ALB	06/25/24 16:29
Total/NA	Prep	300_Prep			7160	SS	EET ALB	06/21/24 09:33
Total/NA	Analysis	300.0		20	7218	RC	EET ALB	06/21/24 16:53

Client Sample ID: HA03@5'

Lab Sample ID: 885-6591-5
Matrix: Solid
Date Collected: 06/19/24 10:21
Date Received: 06/20/24 07:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7098	AT	EET ALB	06/20/24 13:26
Total/NA	Analysis	8015M/D		1	7389	JP	EET ALB	06/25/24 19:08
Total/NA	Prep	5030C			7098	AT	EET ALB	06/20/24 13:26
Total/NA	Analysis	8021B		1	7392	JP	EET ALB	06/25/24 19:08
Total/NA	Prep	SHAKE			7194	KR	EET ALB	06/21/24 14:47
Total/NA	Analysis	8015M/D		1	7313	DH	EET ALB	06/25/24 16:43
Total/NA	Prep	300_Prep			7160	SS	EET ALB	06/21/24 09:33
Total/NA	Analysis	300.0		20	7218	RC	EET ALB	06/21/24 17:06

Client Sample ID: HA03@6

Lab Sample ID: 885-6591-6
Matrix: Solid
Date Collected: 06/19/24 11:32
Date Received: 06/20/24 07:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7098	AT	EET ALB	06/20/24 13:26
Total/NA	Analysis	8015M/D		1	7389	JP	EET ALB	06/25/24 19:32
Total/NA	Prep	5030C			7098	AT	EET ALB	06/20/24 13:26
Total/NA	Analysis	8021B		1	7392	JP	EET ALB	06/25/24 19:32
Total/NA	Prep	SHAKE			7194	KR	EET ALB	06/21/24 14:47
Total/NA	Analysis	8015M/D		1	7313	DH	EET ALB	06/25/24 17:09
Total/NA	Prep	300_Prep			7160	SS	EET ALB	06/21/24 09:33
Total/NA	Analysis	300.0		20	7218	RC	EET ALB	06/21/24 17:18

Client Sample ID: HA04@5'

Lab Sample ID: 885-6591-7
Matrix: Solid
Date Collected: 06/19/24 10:30
Date Received: 06/20/24 07:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7098	AT	EET ALB	06/20/24 13:26
Total/NA	Analysis	8015M/D		1	7389	JP	EET ALB	06/25/24 19:55
Total/NA	Prep	5030C			7098	AT	EET ALB	06/20/24 13:26
Total/NA	Analysis	8021B		1	7392	JP	EET ALB	06/25/24 19:55

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Nordhaus #2A

Job ID: 885-6591-1

Client Sample ID: HA04@5'

Lab Sample ID: 885-6591-7
Matrix: Solid
Date Collected: 06/19/24 10:30
Date Received: 06/20/24 07:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			7194	KR	EET ALB	06/21/24 14:47
Total/NA	Analysis	8015M/D		1	7313	DH	EET ALB	06/25/24 17:35
Total/NA	Prep	300_Prep			7160	SS	EET ALB	06/21/24 09:33
Total/NA	Analysis	300.0		20	7218	RC	EET ALB	06/21/24 18:20

Client Sample ID: HA04@6'

Lab Sample ID: 885-6591-8
Matrix: Solid
Date Collected: 06/19/24 11:43
Date Received: 06/20/24 07:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7098	AT	EET ALB	06/20/24 13:26
Total/NA	Analysis	8015M/D		1	7389	JP	EET ALB	06/25/24 20:19
Total/NA	Prep	5030C			7098	AT	EET ALB	06/20/24 13:26
Total/NA	Analysis	8021B		1	7392	JP	EET ALB	06/25/24 20:19
Total/NA	Prep	SHAKE			7194	KR	EET ALB	06/21/24 14:47
Total/NA	Analysis	8015M/D		1	7313	DH	EET ALB	06/25/24 18:01
Total/NA	Prep	300_Prep			7160	SS	EET ALB	06/21/24 09:33
Total/NA	Analysis	300.0		20	7218	RC	EET ALB	06/21/24 17:43

Client Sample ID: FS01

Lab Sample ID: 885-6591-9
Matrix: Solid
Date Collected: 06/19/24 12:01
Date Received: 06/20/24 07:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7098	AT	EET ALB	06/20/24 13:26
Total/NA	Analysis	8015M/D		1	7389	JP	EET ALB	06/25/24 20:43
Total/NA	Prep	5030C			7098	AT	EET ALB	06/20/24 13:26
Total/NA	Analysis	8021B		1	7392	JP	EET ALB	06/25/24 20:43
Total/NA	Prep	SHAKE			7194	KR	EET ALB	06/21/24 14:47
Total/NA	Analysis	8015M/D		1	7313	DH	EET ALB	06/25/24 17:48
Total/NA	Prep	300_Prep			7160	SS	EET ALB	06/21/24 09:33
Total/NA	Analysis	300.0		20	7218	RC	EET ALB	06/21/24 17:30

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Hilcorp Energy
Project/Site: Nordhaus #2A

Job ID: 885-6591-1

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5030C	Solid	Gasoline Range Organics (GRO)-C6-C10
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-26-25

Chain-of-Custody Record

Client: Hilcorp attn: Kate Kaufman

Mailing Address:

Phone #:

email or Fax#: kkaufman@gmail.com

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush 5day

Project Name: Nordhaus #2A

Project #:

Project Manager:
Stuart Hyde shyde@ensolum.com
Sidney Mahaney smahaney@ensolum.com

Sampler: Zach Myers

On Ice: ☑ Yes ☐ No

# of Coolers: 1 409

Cooler Temp(Including CF): 0.3-0=0.3 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORA
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

885-6591 COC

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6-19	1008	soil	HA01@5'	4oz jar	cool	1	X	X					X			
	1101		HA01@6'			2										
	1015		HA02@5'			3										
	1115		HA02@6'			4										
	1021		HA03@5'			5										
	1132		HA03@6'			6										
	1030		HA04@5'			7										
	1143		HA04@6'			8										
	1201		FS01			9										

Date	Time	Relinquished by	Received by	Via	Date	Time
6-19	1400	Zach Myers				
6/19/24	1815	Jennifer Walters		courier	6/20/24	7:05

Remarks:
cc: zmyers@ensolum.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories This serves as notice of this possibility Any sub-contracted data will be clearly notated on the analytical report.

Login Sample Receipt Checklist

Client: Hilcorp Energy Job Number: 885-6591-1

Login Number: 6591 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: McQuiston, Steven

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Kate Kaufman
Hilcorp Energy
PO BOX 4700
Farmington, New Mexico 87499

Generated 7/24/2024 4:08:31 PM

JOB DESCRIPTION

Nordhaus 2A

JOB NUMBER

885-8184-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
7/24/2024 4:08:31 PM

Authorized for release by
Michelle Garcia, Project Manager
michelle.garcia@et.eurofinsus.com
(505)345-3975

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Laboratory Job ID: 885-8184-1

Table of Contents

Definitions/Glossary

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Hilcorp Energy
Project: Nordhaus 2A

Job ID: 885-8184-1

Job ID: 885-8184-1 Eurofins Albuquerque

Job Narrative
885-8184-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 7/18/2024 6:27 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.7°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

Client Sample ID: PH01@5

Date Collected: 07/17/24 09:25
Date Received: 07/18/24 06:27

Lab Sample ID: 885-8184-1

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		07/18/24 10:38	07/20/24 01:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*07/18/24 10:38*	*07/20/24 01:40*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/18/24 10:38	07/20/24 01:40	1
Ethylbenzene	ND		0.050		mg/Kg		07/18/24 10:38	07/20/24 01:40	1
Toluene	ND		0.050		mg/Kg		07/18/24 10:38	07/20/24 01:40	1
Xylenes, Total	ND		0.099		mg/Kg		07/18/24 10:38	07/20/24 01:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/18/24 10:38*	*07/20/24 01:40*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		07/19/24 10:36	07/19/24 23:38	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		07/19/24 10:36	07/19/24 23:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*	*07/19/24 10:36*	*07/19/24 23:38*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/19/24 13:21	07/19/24 17:47	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

Client Sample ID: PH01@6

Date Collected: 07/17/24 09:27
Date Received: 07/18/24 06:27

Lab Sample ID: 885-8184-2

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		07/18/24 10:38	07/20/24 02:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*07/18/24 10:38*	*07/20/24 02:51*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/18/24 10:38	07/20/24 02:51	1
Ethylbenzene	ND		0.050		mg/Kg		07/18/24 10:38	07/20/24 02:51	1
Toluene	ND		0.050		mg/Kg		07/18/24 10:38	07/20/24 02:51	1
Xylenes, Total	ND		0.10		mg/Kg		07/18/24 10:38	07/20/24 02:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*07/18/24 10:38*	*07/20/24 02:51*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		07/19/24 10:36	07/19/24 23:51	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/19/24 10:36	07/19/24 23:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*107*		*62 - 134*	*07/19/24 10:36*	*07/19/24 23:51*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/19/24 13:21	07/19/24 17:59	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

Client Sample ID: PH02@5

Date Collected: 07/17/24 09:29
Date Received: 07/18/24 06:27

Lab Sample ID: 885-8184-3

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		07/18/24 10:38	07/20/24 04:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*07/18/24 10:38*	*07/20/24 04:01*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/18/24 10:38	07/20/24 04:01	1
Ethylbenzene	ND		0.050		mg/Kg		07/18/24 10:38	07/20/24 04:01	1
Toluene	ND		0.050		mg/Kg		07/18/24 10:38	07/20/24 04:01	1
Xylenes, Total	ND		0.10		mg/Kg		07/18/24 10:38	07/20/24 04:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*48 - 145*	*07/18/24 10:38*	*07/20/24 04:01*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		07/19/24 10:36	07/20/24 00:05	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/19/24 10:36	07/20/24 00:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*106*		*62 - 134*	*07/19/24 10:36*	*07/20/24 00:05*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/19/24 13:21	07/19/24 18:38	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

Client Sample ID: PH02@6

Date Collected: 07/17/24 09:31
Date Received: 07/18/24 06:27

Lab Sample ID: 885-8184-4

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		07/18/24 10:38	07/20/24 04:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*07/18/24 10:38*	*07/20/24 04:48*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/18/24 10:38	07/20/24 04:48	1
Ethylbenzene	ND		0.049		mg/Kg		07/18/24 10:38	07/20/24 04:48	1
Toluene	ND		0.049		mg/Kg		07/18/24 10:38	07/20/24 04:48	1
Xylenes, Total	ND		0.098		mg/Kg		07/18/24 10:38	07/20/24 04:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*48 - 145*	*07/18/24 10:38*	*07/20/24 04:48*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**17**		9.8		mg/Kg		07/19/24 10:36	07/20/24 00:18	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/19/24 10:36	07/20/24 00:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*108*		*62 - 134*	*07/19/24 10:36*	*07/20/24 00:18*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/19/24 13:21	07/19/24 18:51	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

Client Sample ID: SW-01

Date Collected: 07/17/24 13:40
Date Received: 07/18/24 06:27

Lab Sample ID: 885-8184-5

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		07/18/24 10:38	07/20/24 05:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*07/18/24 10:38*	*07/20/24 05:12*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/18/24 10:38	07/20/24 05:12	1
Ethylbenzene	ND		0.049		mg/Kg		07/18/24 10:38	07/20/24 05:12	1
Toluene	ND		0.049		mg/Kg		07/18/24 10:38	07/20/24 05:12	1
Xylenes, Total	ND		0.099		mg/Kg		07/18/24 10:38	07/20/24 05:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*07/18/24 10:38*	*07/20/24 05:12*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		07/19/24 10:36	07/20/24 00:32	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		07/19/24 10:36	07/20/24 00:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*120*		*62 - 134*	*07/19/24 10:36*	*07/20/24 00:32*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/19/24 13:21	07/19/24 19:04	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

Client Sample ID: SW-02

Date Collected: 07/17/24 13:42
Date Received: 07/18/24 06:27

Lab Sample ID: 885-8184-6

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		07/18/24 10:38	07/20/24 05:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*07/18/24 10:38*	*07/20/24 05:35*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/18/24 10:38	07/20/24 05:35	1
Ethylbenzene	ND		0.047		mg/Kg		07/18/24 10:38	07/20/24 05:35	1
Toluene	ND		0.047		mg/Kg		07/18/24 10:38	07/20/24 05:35	1
Xylenes, Total	ND		0.095		mg/Kg		07/18/24 10:38	07/20/24 05:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*48 - 145*	*07/18/24 10:38*	*07/20/24 05:35*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		07/19/24 10:36	07/20/24 00:46	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/19/24 10:36	07/20/24 00:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*107*		*62 - 134*	*07/19/24 10:36*	*07/20/24 00:46*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/19/24 13:21	07/19/24 19:17	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

Client Sample ID: SW03

Date Collected: 07/17/24 13:44
Date Received: 07/18/24 06:27

Lab Sample ID: 885-8184-7

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		07/18/24 10:38	07/20/24 05:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*07/18/24 10:38*	*07/20/24 05:58*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/18/24 10:38	07/20/24 05:58	1
Ethylbenzene	ND		0.048		mg/Kg		07/18/24 10:38	07/20/24 05:58	1
Toluene	ND		0.048		mg/Kg		07/18/24 10:38	07/20/24 05:58	1
Xylenes, Total	ND		0.096		mg/Kg		07/18/24 10:38	07/20/24 05:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/18/24 10:38*	*07/20/24 05:58*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		07/19/24 10:36	07/20/24 00:59	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		07/19/24 10:36	07/20/24 00:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*107*		*62 - 134*	*07/19/24 10:36*	*07/20/24 00:59*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/19/24 13:21	07/19/24 19:30	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

Client Sample ID: FS-02
Date Collected: 07/17/24 13:46
Date Received: 07/18/24 06:27

Lab Sample ID: 885-8184-8
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		07/18/24 10:38	07/20/24 06:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*35 - 166*	*07/18/24 10:38*	*07/20/24 06:22*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/18/24 10:38	07/20/24 06:22	1
Ethylbenzene	ND		0.047		mg/Kg		07/18/24 10:38	07/20/24 06:22	1
Toluene	**0.047**		0.047		mg/Kg		07/18/24 10:38	07/20/24 06:22	1
Xylenes, Total	ND		0.095		mg/Kg		07/18/24 10:38	07/20/24 06:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*07/18/24 10:38*	*07/20/24 06:22*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**11**		9.6		mg/Kg		07/19/24 10:36	07/20/24 01:13	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		07/19/24 10:36	07/20/24 01:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*111*		*62 - 134*	*07/19/24 10:36*	*07/20/24 01:13*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/19/24 13:21	07/19/24 19:42	20

Client Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

Client Sample ID: FS-03
Date Collected: 07/17/24 13:48
Date Received: 07/18/24 06:27

Lab Sample ID: 885-8184-9
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		07/18/24 10:38	07/20/24 06:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*07/18/24 10:38*	*07/20/24 06:45*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/18/24 10:38	07/20/24 06:45	1
Ethylbenzene	ND		0.049		mg/Kg		07/18/24 10:38	07/20/24 06:45	1
Toluene	ND		0.049		mg/Kg		07/18/24 10:38	07/20/24 06:45	1
Xylenes, Total	ND		0.097		mg/Kg		07/18/24 10:38	07/20/24 06:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*07/18/24 10:38*	*07/20/24 06:45*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**26**		9.5		mg/Kg		07/19/24 10:36	07/20/24 01:26	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		07/19/24 10:36	07/20/24 01:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*106*		*62 - 134*	*07/19/24 10:36*	*07/20/24 01:26*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/19/24 13:21	07/19/24 19:55	20

QC Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-8646/1-A
Matrix: Solid
Analysis Batch: 8807

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8646

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		07/18/24 10:38	07/20/24 01:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*07/18/24 10:38*	*07/20/24 01:17*	*1*

Lab Sample ID: LCS 885-8646/2-A
Matrix: Solid
Analysis Batch: 8807

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8646

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	20.7		mg/Kg		83	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*198*	*S1+*	*35 - 166*

Lab Sample ID: 885-8184-1 MS
Matrix: Solid
Analysis Batch: 8807

Client Sample ID: PH01@5
Prep Type: Total/NA
Prep Batch: 8646

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	ND		24.7	22.7		mg/Kg		92	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*208*	*S1+*	*35 - 166*

Lab Sample ID: 885-8184-1 MSD
Matrix: Solid
Analysis Batch: 8807

Client Sample ID: PH01@5
Prep Type: Total/NA
Prep Batch: 8646

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		24.8	21.5		mg/Kg		87	70 - 130	5	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*204*	*S1+*	*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-8646/1-A
Matrix: Solid
Analysis Batch: 8808

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8646

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/18/24 10:38	07/20/24 01:17	1
Ethylbenzene	ND		0.050		mg/Kg		07/18/24 10:38	07/20/24 01:17	1
Toluene	ND		0.050		mg/Kg		07/18/24 10:38	07/20/24 01:17	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 885-8646/1-A
Matrix: Solid
Analysis Batch: 8808

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8646

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		0.10		mg/Kg		07/18/24 10:38	07/20/24 01:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/18/24 10:38*	*07/20/24 01:17*	*1*

Lab Sample ID: LCS 885-8646/3-A
Matrix: Solid
Analysis Batch: 8808

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8646

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.788		mg/Kg		79	70 - 130		
Ethylbenzene			1.00	0.752		mg/Kg		75	70 - 130		
m&p-Xylene			2.00	1.51		mg/Kg		76	70 - 130		
o-Xylene			1.00	0.737		mg/Kg		74	70 - 130		
Toluene			1.00	0.755		mg/Kg		75	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*

Lab Sample ID: 885-8184-2 MS
Matrix: Solid
Analysis Batch: 8808

Client Sample ID: PH01@6
Prep Type: Total/NA
Prep Batch: 8646

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.992	0.826		mg/Kg		83	70 - 130		
Ethylbenzene	ND		0.992	0.796		mg/Kg		80	70 - 130		
m&p-Xylene	ND		1.98	1.60		mg/Kg		80	70 - 130		
o-Xylene	ND		0.992	0.785		mg/Kg		79	70 - 130		
Toluene	ND		0.992	0.788		mg/Kg		78	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*

Lab Sample ID: 885-8184-2 MSD
Matrix: Solid
Analysis Batch: 8808

Client Sample ID: PH01@6
Prep Type: Total/NA
Prep Batch: 8646

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.996	0.860		mg/Kg		86	70 - 130	4	20
Ethylbenzene	ND		0.996	0.841		mg/Kg		84	70 - 130	6	20
m&p-Xylene	ND		1.99	1.68		mg/Kg		83	70 - 130	5	20
o-Xylene	ND		0.996	0.827		mg/Kg		83	70 - 130	5	20
Toluene	ND		0.996	0.821		mg/Kg		81	70 - 130	4	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*

QC Sample Results

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-8772/1-A
Matrix: Solid
Analysis Batch: 8775

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8772

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		07/19/24 10:36	07/19/24 20:40	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		07/19/24 10:36	07/19/24 20:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*103*		*62 - 134*	*07/19/24 10:36*	*07/19/24 20:40*	*1*

Lab Sample ID: LCS 885-8772/2-A
Matrix: Solid
Analysis Batch: 8775

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8772

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	50.0		mg/Kg		100	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*101*		*62 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-8800/1-A
Matrix: Solid
Analysis Batch: 8833

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8800

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		07/19/24 13:21	07/19/24 14:59	1

Lab Sample ID: LCS 885-8800/2-A
Matrix: Solid
Analysis Batch: 8833

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8800

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	31.3		mg/Kg		104	90 - 110		

QC Association Summary

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

GC VOA

Prep Batch: 8646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8184-1	PH01@5	Total/NA	Solid	5030C	
885-8184-2	PH01@6	Total/NA	Solid	5030C	
885-8184-3	PH02@5	Total/NA	Solid	5030C	
885-8184-4	PH02@6	Total/NA	Solid	5030C	
885-8184-5	SW-01	Total/NA	Solid	5030C	
885-8184-6	SW-02	Total/NA	Solid	5030C	
885-8184-7	SW03	Total/NA	Solid	5030C	
885-8184-8	FS-02	Total/NA	Solid	5030C	
885-8184-9	FS-03	Total/NA	Solid	5030C	
MB 885-8646/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-8646/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-8646/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-8184-1 MS	PH01@5	Total/NA	Solid	5030C	
885-8184-1 MSD	PH01@5	Total/NA	Solid	5030C	
885-8184-2 MS	PH01@6	Total/NA	Solid	5030C	
885-8184-2 MSD	PH01@6	Total/NA	Solid	5030C	

Analysis Batch: 8807

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8184-1	PH01@5	Total/NA	Solid	8015M/D	8646
885-8184-2	PH01@6	Total/NA	Solid	8015M/D	8646
885-8184-3	PH02@5	Total/NA	Solid	8015M/D	8646
885-8184-4	PH02@6	Total/NA	Solid	8015M/D	8646
885-8184-5	SW-01	Total/NA	Solid	8015M/D	8646
885-8184-6	SW-02	Total/NA	Solid	8015M/D	8646
885-8184-7	SW03	Total/NA	Solid	8015M/D	8646
885-8184-8	FS-02	Total/NA	Solid	8015M/D	8646
885-8184-9	FS-03	Total/NA	Solid	8015M/D	8646
MB 885-8646/1-A	Method Blank	Total/NA	Solid	8015M/D	8646
LCS 885-8646/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	8646
885-8184-1 MS	PH01@5	Total/NA	Solid	8015M/D	8646
885-8184-1 MSD	PH01@5	Total/NA	Solid	8015M/D	8646

Analysis Batch: 8808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8184-1	PH01@5	Total/NA	Solid	8021B	8646
885-8184-2	PH01@6	Total/NA	Solid	8021B	8646
885-8184-3	PH02@5	Total/NA	Solid	8021B	8646
885-8184-4	PH02@6	Total/NA	Solid	8021B	8646
885-8184-5	SW-01	Total/NA	Solid	8021B	8646
885-8184-6	SW-02	Total/NA	Solid	8021B	8646
885-8184-7	SW03	Total/NA	Solid	8021B	8646
885-8184-8	FS-02	Total/NA	Solid	8021B	8646
885-8184-9	FS-03	Total/NA	Solid	8021B	8646
MB 885-8646/1-A	Method Blank	Total/NA	Solid	8021B	8646
LCS 885-8646/3-A	Lab Control Sample	Total/NA	Solid	8021B	8646
885-8184-2 MS	PH01@6	Total/NA	Solid	8021B	8646
885-8184-2 MSD	PH01@6	Total/NA	Solid	8021B	8646

QC Association Summary

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

GC Semi VOA

Prep Batch: 8772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8184-1	PH01@5	Total/NA	Solid	SHAKE	
885-8184-2	PH01@6	Total/NA	Solid	SHAKE	
885-8184-3	PH02@5	Total/NA	Solid	SHAKE	
885-8184-4	PH02@6	Total/NA	Solid	SHAKE	
885-8184-5	SW-01	Total/NA	Solid	SHAKE	
885-8184-6	SW-02	Total/NA	Solid	SHAKE	
885-8184-7	SW03	Total/NA	Solid	SHAKE	
885-8184-8	FS-02	Total/NA	Solid	SHAKE	
885-8184-9	FS-03	Total/NA	Solid	SHAKE	
MB 885-8772/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-8772/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 8775

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8184-1	PH01@5	Total/NA	Solid	8015M/D	8772
885-8184-2	PH01@6	Total/NA	Solid	8015M/D	8772
885-8184-3	PH02@5	Total/NA	Solid	8015M/D	8772
885-8184-4	PH02@6	Total/NA	Solid	8015M/D	8772
885-8184-5	SW-01	Total/NA	Solid	8015M/D	8772
885-8184-6	SW-02	Total/NA	Solid	8015M/D	8772
885-8184-7	SW03	Total/NA	Solid	8015M/D	8772
885-8184-8	FS-02	Total/NA	Solid	8015M/D	8772
885-8184-9	FS-03	Total/NA	Solid	8015M/D	8772
MB 885-8772/1-A	Method Blank	Total/NA	Solid	8015M/D	8772
LCS 885-8772/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	8772

HPLC/IC

Prep Batch: 8800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8184-1	PH01@5	Total/NA	Solid	300_Prep	
885-8184-2	PH01@6	Total/NA	Solid	300_Prep	
885-8184-3	PH02@5	Total/NA	Solid	300_Prep	
885-8184-4	PH02@6	Total/NA	Solid	300_Prep	
885-8184-5	SW-01	Total/NA	Solid	300_Prep	
885-8184-6	SW-02	Total/NA	Solid	300_Prep	
885-8184-7	SW03	Total/NA	Solid	300_Prep	
885-8184-8	FS-02	Total/NA	Solid	300_Prep	
885-8184-9	FS-03	Total/NA	Solid	300_Prep	
MB 885-8800/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-8800/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 8833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8184-1	PH01@5	Total/NA	Solid	300.0	8800
885-8184-2	PH01@6	Total/NA	Solid	300.0	8800
885-8184-3	PH02@5	Total/NA	Solid	300.0	8800
885-8184-4	PH02@6	Total/NA	Solid	300.0	8800
885-8184-5	SW-01	Total/NA	Solid	300.0	8800
885-8184-6	SW-02	Total/NA	Solid	300.0	8800
885-8184-7	SW03	Total/NA	Solid	300.0	8800

QC Association Summary

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

HPLC/IC (Continued)

Analysis Batch: 8833 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8184-8	FS-02	Total/NA	Solid	300.0	8800
885-8184-9	FS-03	Total/NA	Solid	300.0	8800
MB 885-8800/1-A	Method Blank	Total/NA	Solid	300.0	8800
LCS 885-8800/2-A	Lab Control Sample	Total/NA	Solid	300.0	8800

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

Client Sample ID: PH01@5
Date Collected: 07/17/24 09:25
Date Received: 07/18/24 06:27

Lab Sample ID: 885-8184-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8646	AT	EET ALB	07/18/24 10:38
Total/NA	Analysis	8015M/D		1	8807	JP	EET ALB	07/20/24 01:40
Total/NA	Prep	5030C			8646	AT	EET ALB	07/18/24 10:38
Total/NA	Analysis	8021B		1	8808	JP	EET ALB	07/20/24 01:40
Total/NA	Prep	SHAKE			8772	KR	EET ALB	07/19/24 10:36
Total/NA	Analysis	8015M/D		1	8775	PD	EET ALB	07/19/24 23:38
Total/NA	Prep	300_Prep			8800	RC	EET ALB	07/19/24 13:21
Total/NA	Analysis	300.0		20	8833	RC	EET ALB	07/19/24 17:47

Client Sample ID: PH01@6
Date Collected: 07/17/24 09:27
Date Received: 07/18/24 06:27

Lab Sample ID: 885-8184-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8646	AT	EET ALB	07/18/24 10:38
Total/NA	Analysis	8015M/D		1	8807	JP	EET ALB	07/20/24 02:51
Total/NA	Prep	5030C			8646	AT	EET ALB	07/18/24 10:38
Total/NA	Analysis	8021B		1	8808	JP	EET ALB	07/20/24 02:51
Total/NA	Prep	SHAKE			8772	KR	EET ALB	07/19/24 10:36
Total/NA	Analysis	8015M/D		1	8775	PD	EET ALB	07/19/24 23:51
Total/NA	Prep	300_Prep			8800	RC	EET ALB	07/19/24 13:21
Total/NA	Analysis	300.0		20	8833	RC	EET ALB	07/19/24 17:59

Client Sample ID: PH02@5
Date Collected: 07/17/24 09:29
Date Received: 07/18/24 06:27

Lab Sample ID: 885-8184-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8646	AT	EET ALB	07/18/24 10:38
Total/NA	Analysis	8015M/D		1	8807	JP	EET ALB	07/20/24 04:01
Total/NA	Prep	5030C			8646	AT	EET ALB	07/18/24 10:38
Total/NA	Analysis	8021B		1	8808	JP	EET ALB	07/20/24 04:01
Total/NA	Prep	SHAKE			8772	KR	EET ALB	07/19/24 10:36
Total/NA	Analysis	8015M/D		1	8775	PD	EET ALB	07/20/24 00:05
Total/NA	Prep	300_Prep			8800	RC	EET ALB	07/19/24 13:21
Total/NA	Analysis	300.0		20	8833	RC	EET ALB	07/19/24 18:38

Client Sample ID: PH02@6
Date Collected: 07/17/24 09:31
Date Received: 07/18/24 06:27

Lab Sample ID: 885-8184-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8646	AT	EET ALB	07/18/24 10:38
Total/NA	Analysis	8015M/D		1	8807	JP	EET ALB	07/20/24 04:48

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

Client Sample ID: PH02@6

Lab Sample ID: 885-8184-4
Matrix: Solid
Date Collected: 07/17/24 09:31
Date Received: 07/18/24 06:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8646	AT	EET ALB	07/18/24 10:38
Total/NA	Analysis	8021B		1	8808	JP	EET ALB	07/20/24 04:48
Total/NA	Prep	SHAKE			8772	KR	EET ALB	07/19/24 10:36
Total/NA	Analysis	8015M/D		1	8775	PD	EET ALB	07/20/24 00:18
Total/NA	Prep	300_Prep			8800	RC	EET ALB	07/19/24 13:21
Total/NA	Analysis	300.0		20	8833	RC	EET ALB	07/19/24 18:51

Client Sample ID: SW-01

Lab Sample ID: 885-8184-5
Matrix: Solid
Date Collected: 07/17/24 13:40
Date Received: 07/18/24 06:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8646	AT	EET ALB	07/18/24 10:38
Total/NA	Analysis	8015M/D		1	8807	JP	EET ALB	07/20/24 05:12
Total/NA	Prep	5030C			8646	AT	EET ALB	07/18/24 10:38
Total/NA	Analysis	8021B		1	8808	JP	EET ALB	07/20/24 05:12
Total/NA	Prep	SHAKE			8772	KR	EET ALB	07/19/24 10:36
Total/NA	Analysis	8015M/D		1	8775	PD	EET ALB	07/20/24 00:32
Total/NA	Prep	300_Prep			8800	RC	EET ALB	07/19/24 13:21
Total/NA	Analysis	300.0		20	8833	RC	EET ALB	07/19/24 19:04

Client Sample ID: SW-02

Lab Sample ID: 885-8184-6
Matrix: Solid
Date Collected: 07/17/24 13:42
Date Received: 07/18/24 06:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8646	AT	EET ALB	07/18/24 10:38
Total/NA	Analysis	8015M/D		1	8807	JP	EET ALB	07/20/24 05:35
Total/NA	Prep	5030C			8646	AT	EET ALB	07/18/24 10:38
Total/NA	Analysis	8021B		1	8808	JP	EET ALB	07/20/24 05:35
Total/NA	Prep	SHAKE			8772	KR	EET ALB	07/19/24 10:36
Total/NA	Analysis	8015M/D		1	8775	PD	EET ALB	07/20/24 00:46
Total/NA	Prep	300_Prep			8800	RC	EET ALB	07/19/24 13:21
Total/NA	Analysis	300.0		20	8833	RC	EET ALB	07/19/24 19:17

Client Sample ID: SW03

Lab Sample ID: 885-8184-7
Matrix: Solid
Date Collected: 07/17/24 13:44
Date Received: 07/18/24 06:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8646	AT	EET ALB	07/18/24 10:38
Total/NA	Analysis	8015M/D		1	8807	JP	EET ALB	07/20/24 05:58
Total/NA	Prep	5030C			8646	AT	EET ALB	07/18/24 10:38
Total/NA	Analysis	8021B		1	8808	JP	EET ALB	07/20/24 05:58

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

Client Sample ID: SW03
Date Collected: 07/17/24 13:44
Date Received: 07/18/24 06:27

Lab Sample ID: 885-8184-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			8772	KR	EET ALB	07/19/24 10:36
Total/NA	Analysis	8015M/D		1	8775	PD	EET ALB	07/20/24 00:59
Total/NA	Prep	300_Prep			8800	RC	EET ALB	07/19/24 13:21
Total/NA	Analysis	300.0		20	8833	RC	EET ALB	07/19/24 19:30

Client Sample ID: FS-02
Date Collected: 07/17/24 13:46
Date Received: 07/18/24 06:27

Lab Sample ID: 885-8184-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8646	AT	EET ALB	07/18/24 10:38
Total/NA	Analysis	8015M/D		1	8807	JP	EET ALB	07/20/24 06:22
Total/NA	Prep	5030C			8646	AT	EET ALB	07/18/24 10:38
Total/NA	Analysis	8021B		1	8808	JP	EET ALB	07/20/24 06:22
Total/NA	Prep	SHAKE			8772	KR	EET ALB	07/19/24 10:36
Total/NA	Analysis	8015M/D		1	8775	PD	EET ALB	07/20/24 01:13
Total/NA	Prep	300_Prep			8800	RC	EET ALB	07/19/24 13:21
Total/NA	Analysis	300.0		20	8833	RC	EET ALB	07/19/24 19:42

Client Sample ID: FS-03
Date Collected: 07/17/24 13:48
Date Received: 07/18/24 06:27

Lab Sample ID: 885-8184-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8646	AT	EET ALB	07/18/24 10:38
Total/NA	Analysis	8015M/D		1	8807	JP	EET ALB	07/20/24 06:45
Total/NA	Prep	5030C			8646	AT	EET ALB	07/18/24 10:38
Total/NA	Analysis	8021B		1	8808	JP	EET ALB	07/20/24 06:45
Total/NA	Prep	SHAKE			8772	KR	EET ALB	07/19/24 10:36
Total/NA	Analysis	8015M/D		1	8775	PD	EET ALB	07/20/24 01:26
Total/NA	Prep	300_Prep			8800	RC	EET ALB	07/19/24 13:21
Total/NA	Analysis	300.0		20	8833	RC	EET ALB	07/19/24 19:55

Laboratory References:
EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Hilcorp Energy
Project/Site: Nordhaus 2A

Job ID: 885-8184-1

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-26-25

Chain-of-Custody Record

Client: H.E.C.

Attn: Kate Kaufman

Mailing Address:

Phone #:

email or Fax#: KKaufman@hilcorp.com

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 day

☑ Standard ☐ Rush

Project Name: Nordhaus 2A

Project #:

Project Manager: Stuart Hyde

Shyde@ensolum.com

Sampler: Peter Anderson

On Ice: ☑ Yes ☐ No Yogi

# of Coolers: 1

Cooler Temp(Including CF): 5.8 -0.1 = 5.7 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORA

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

885-8184 COC

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
7/17	925	Soil	PH01 @ 5	4oz, 1	Cool/Ice	1	X	X					X			
	927		PH01 @ 6			2										
	929		PH02 @ 5			3										
	931		PH02 @ 6			4										
	1340		SW-01			5										
	1342		SW-02			6										
	1344		SW-03			7										
	1346		FS-02			8										
	1348		FS-03			9										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
7/17/24	1452	Peter Anderson	Chad Walt		7/17/24	1452
7/17/24	1745	Stuart Weller		courier	7/18/24	6:27

Remarks: PLZ CC: Pandersen@Smahanay@Ensolum.com

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Login Sample Receipt Checklist

Client: Hilcorp Energy Job Number: 885-8184-1

Login Number: 8184 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ENSOLUM

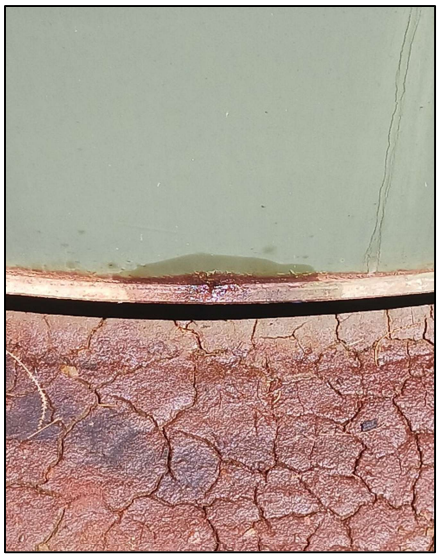
APPENDIX C

Photographic Log

ENSOLUM

Photographic Log
Hilcorp Energy Company
Nordhaus #2A
San Juan County, New Mexico

Photograph: 1 Date: 6/12/2023
Description: Initial release - Cribbing containment
View: South



Photograph: 2 Date: 6/12/2023
Description: Bottom of BGT and leak source
View: Bottom of BGT

Photograph: 3 Date: 6/13/2024
Description: Post remedial activities
View: North

Photograph: 4 Date: 6/19/2024
Description: Sampling activities
View: East

Photograph: 5 Date: 6/19/2024
Description: Sampling activities
View: North

Photograph: 6 Date: 6/19/2024
Description: Sampling activities
View: West

Photograph: 7 Date: 6/19/2024
Description: Sampling activities
View: Southeast Corner

Photograph: 8 Date: 6/19/2024
Description: Sampling activities
View: Southwest Corner

Photograph: 9 Date: 6/19/2024
Description: Sampling activities
View: Northeast Corner

Photograph: 10 Date: 6/19/2024
Description: Sampling activities
View: Northwest Corner

Photograph: 11 Date: 6/19/2024
Description: Sampling activities
View: West

Photograph: 12 Date: 7/17/2024
Description: Potholing activities for delineation confirmation
View: West

Photograph: 13 Date: 7/17/2024
Description: Excavation activities
View: Northwest

Photograph: 14 Date: 7/17/2024
Description: Excavation activities
View: Northeast

District I
1625 N. French Dr., Hobbs, NM 88240
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District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

QUESTIONS

Action 376164

QUESTIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 376164
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nAPP2416532213**
Incident Name	**NAPP2416532213 NORDHAUS #2A @ 30-045-23586**
Incident Type	**Produced Water Release**
Incident Status	**Remediation Closure Report Received**
Incident Well	**[30-045-23586] NORDHAUS #002A**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	Nordhaus #2A
Date Release Discovered	06/12/2024
Surface Owner	Federal

Incident Details	
Please answer all the questions in this group.	
Incident Type	Produced Water Release
Did this release result in a fire or is the result of a fire	No
Did this release result in any injuries	No
Has this release reached or does it have a reasonable probability of reaching a watercourse	No
Has this release endangered or does it have a reasonable probability of endangering public health	No
Has this release substantially damaged or will it substantially damage property or the environment	No
Is this release of a volume that is or may with reasonable probability be detrimental to fresh water	No

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	*Not answered.*
Produced Water Released (bbls) Details	Cause: Corrosion | Tank (Any) | Produced Water | Released: 37 BBL | Recovered: 0 BBL | Lost: 37 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	No
Condensate Released (bbls) Details	*Not answered.*
Natural Gas Vented (Mcf) Details	*Not answered.*
Natural Gas Flared (Mcf) Details	*Not answered.*
Other Released Details	*Not answered.*
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	Trace amount of skim oil in produced water. Majority of oil remained in the pit.

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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

QUESTIONS (continued)

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 376164
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	**No, according to supplied volumes this does not appear to be a "gas only" report.**
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	**Yes**
Reasons why this would be considered a submission for a notification of a major release	**From paragraph A. "Major release" determine using:** **(1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.**
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.	

Initial Response	
The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury.	
The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	*Not answered.*
Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

I hereby agree and sign off to the above statement	Name: Stuart Hyde Title: Senior Geologist Email: shyde@ensolum.com Date: 08/21/2024

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Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

QUESTIONS (continued)

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 376164
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Site Characterization	
Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 100 and 500 (ft.)
What method was used to determine the depth to ground water	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Between 1000 (ft.) and ½ (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Greater than 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Greater than 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Greater than 5 (mi.)
Any other fresh water well or spring	Between 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1000 (ft.) and ½ (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	None
A 100-year floodplain	Between ½ and 1 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

Remediation Plan	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	0
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	2350
GRO+DRO (EPA SW-846 Method 8015M)	1600
BTEX (EPA SW-846 Method 8021B or 8260B)	0
Benzene (EPA SW-846 Method 8021B or 8260B)	0
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
On what estimated date will the remediation commence	07/17/2024
On what date will (or did) the final sampling or liner inspection occur	07/17/2024
On what date will (or was) the remediation complete(d)	07/17/2024
What is the estimated surface area (in square feet) that will be reclaimed	0
What is the estimated volume (in cubic yards) that will be reclaimed	0
What is the estimated surface area (in square feet) that will be remediated	880
What is the estimated volume (in cubic yards) that will be remediated	47
These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.	
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

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QUESTIONS

Remediation Plan (continued)	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
(Select all answers below that apply.)	
(Ex Situ) Excavation and **off-site** disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for **off-site** disposal	ENVIROTECH LANDFARM #2 [fEEM0112336756]
OR which OCD approved well (API) will be used for **off-site** disposal	*Not answered.*
OR is the **off-site** disposal site, to be used, out-of-state	*Not answered.*
OR is the **off-site** disposal site, to be used, an NMED facility	*Not answered.*
(Ex Situ) Excavation and **on-site** remediation (i.e. On-Site Land Farms)	*Not answered.*
(In Situ) Soil Vapor Extraction	*Not answered.*
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	*Not answered.*
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	*Not answered.*
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	*Not answered.*
Ground Water Abatement pursuant to 19.15.30 NMAC	*Not answered.*
OTHER (Non-listed remedial process)	*Not answered.*
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
I hereby agree and sign off to the above statement	Name: Stuart Hyde Title: Senior Geologist Email: shyde@ensolum.com Date: 08/21/2024
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 376164
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Deferral Requests Only	
Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.	
Requesting a deferral of the remediation closure due date with the approval of this submission	No

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QUESTIONS (continued)

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	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	**363267**
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	**07/17/2024**
What was the (estimated) number of samples that were to be gathered	**5**
What was the sampling surface area in square feet	**200**

Remediation Closure Request	
Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.	
Requesting a remediation closure approval with this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	**Yes**
Was this release entirely contained within a lined containment area	**No**
All areas reasonably needed for production or subsequent drilling operations have been stabilized, returned to the sites existing grade, and have a soil cover that prevents ponding of water, minimizing dust and erosion	Yes
What was the total surface area (in square feet) remediated	880
What was the total volume (cubic yards) remediated	47
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste contain earthen material with concentrations less than 600 mg/kg chlorides, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg Benzene	Yes
What was the total surface area (in square feet) reclaimed	0
What was the total volume (in cubic yards) reclaimed	0
Summarize any additional remediation activities not included by answers (above)	None

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (in .pdf format) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

I hereby agree and sign off to the above statement	Name: Stuart Hyde Title: Senior Geologist Email: shyde@ensolum.com Date: 08/21/2024

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QUESTIONS (continued)

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	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Reclamation Report	
Only answer the questions in this group if all reclamation steps have been completed.	
Requesting a reclamation approval with this submission	No

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CONDITIONS

Action 376164

CONDITIONS

Operator:	OGRID:
HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	372171
	Action Number: 376164
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	We have received your Remediation Closure Report for Incident #NAPP2416532213 NORDHAUS #2A, thank you. This Remediation Closure Report is approved.	9/11/2024